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AUTHOR	Glasnapp, Douglas R.; Poggio, John P.
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ABSTRACT

This study used computer simulation to provide information on the percentage of students with learning disabilities expected to be identified under different aptitude-achievement discrepancy eligibility models and criteria and to demonstrate the consequential effects in terms of the extent to which the different models identify students of different ability levels. The two primary models of concern were the regression discrepancy model and the straight discrepancy model. In addition, the true score discrepancy model was included in the comparisons. Data with predetermined parameters were generated to simulate conditions mirroring those found in actual practice. Four base data sets for samples of 10,000 cases each were simulated. Findings demonstrate the consequences that result when one of the models is chosen as the preferred model for inclusion in procedures for identifying and qualifying students for services for learning disabled students. Results of the simulation studies indicate that the inflation of qualification rates can range from 12% to 31% when using the straight discrepancy model versus the regression discrepancy model, depending on the score reliabilities for the two measures and the extent of their correlation. (Contains 10 figures, 14 tables, and 6 references.) (Author/SLD)

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Consequential Validity Impact of Choosing Different Aptitude-Achievement Discrepancy Models in Identifying Students with Learning Disabilities

By

Douglas R. Glasnapp and John P. Poggio

The University of Kansas University - School of Education

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Consequential Validity Impact of Choosing Different Aptitude-Achievement Discrepancy Models in Identifying Students with Learning Disabilities[1]

The lack of consistent, universally acceptable procedures for identifying children with learning disabilities continues to plague persons and agencies with educational responsibilities to these children. While the majority of LD identification procedures involve sequential steps of successive screening, diagnosis and confirmation through multiple assessments, historically, one commonality exists in most guiding policy regulations and in practice: a "severe discrepancy" in aptitude and achievement in defined areas must be demonstrated. The latter aptitude-achievement discrepancy has been the most commonly agreed upon and accepted primary criterion and indicator of a learning disability. While much discussion has occurred historically in the literature on appropriate procedures (e. g., Cone & Wilson, 1981; Shepard, 1980; Willson & Reynolds, 1985) and the whole notion of aptitude-achievement discrepancies is currently being reassessed (Bradley, Danielson & Hallahan, 2002; National Joint Committee on Learning Disabilities, 2002; Peterson & Shinn, 2002), the fact remains that alternative procedures for calculating aptitude-achievement discrepancy scores continue to be implemented and used as primary indicators of eligibility for LD services. Each procedure defines a severe discrepancy based on a different formula and criterion value, thus operationally defining LD in different ways and identifying students at different rates and of different ability levels.

Through a series of computer simulation studies, the intent of the present paper is to: 1) provide information on the percentage of students with learning disabilities (LD) expected to be identified under different aptitude-achievement discrepancy eligibility models and criteria, and 2) demonstrate the consequential effects in terms of the extent to which the different models identify students of different ability levels. The two primary models of concern in the comparisons were the regression discrepancy model and the straight discrepancy model. In addition, a third model, the true score discrepancy model,

was included in the comparisons as it attempts to adjust the straight discrepancy model for unreliability of the aptitude and achievement scores.

To comparatively evaluate the identification rates for the models investigated, data with predetermined parameters were generated to simulate conditions mirroring those found in actual practice. In applying each of these models, the resulting selection rates are dependent on several other parameter values that need to be considered in any simulation of data. For the regression discrepancy model, the criteria for eligibility changes as a function of the correlation between the aptitude and achievement measures. For the straight discrepancy model, the criteria for eligibility changes as a function of the reliabilities of the aptitude and achievement measures. For the true score discrepancy model, the criteria for eligibility change as a function of both the correlation between the aptitude and achievement measures and the reliabilities of both measures.

Methods and Techniques

Given that each of the model's criteria for determining eligibility is dependent on either the correlation between the aptitude and achievement measures or the reliabilities of the measures or both, each of these parameters needed to be included and manipulated in the simulation studies. Based on the literature and the normative information in various aptitude and achievement test manuals, correlation and reliability values for the simulations were selected to represent the full range of possibilities of those that would likely be observed in practice. In generating the simulated data, four base data sets were generated for samples of 10,000 cases each. In these data sets, aptitude and achievement scores were generated to create normally distributed scores with a mean of 100 and a standard deviation of 15. Making the data sets unique were the correlations specified between the aptitude and achievement scores for the 10,000 cases within a data set. The aptitude/achievement correlation coefficients defining the data sets were set at values of .75, .55, .35 and .15.

For these data sets, appropriate procedures were used to obtain regression, straight and true discrepancy scores for each case. Discrepancy scores were obtained by subtracting each case's achievement score from their aptitude score. To obtain the regression discrepancy score for a case, a regression equation was developed with achievement as the criterion score and aptitude as the predictor. Predicted achievement scores were obtained from which the actual achievement scores were subtracted to get the regression discrepancy score for a case. In calculating the true discrepancy scores, the reliabilities (r_{apt} and r_{ach}) were used to adjust the discrepancy between aptitude and achievement for errors in measurement. The formula used was:

True discrepancy = r_{apt} (apt score - 100) - r_{ach} (ach score - 100).

To obtain these scores, the reliabilities for the aptitude and achievement measures were varied across the values of .95, .85, and .75, thus creating nine true discrepancy scores from the ordered pairwise combinations: (.95, .95), (.95, .85), (.95, .75), (.85, .95), (.85, .85), (.85, .75), (.75, .95), (.75, .85), and (.75, .75).

The criterion levels to define the size of a discrepancy needed to qualify a student for services are determined by the standard error of estimate for the regression discrepancy scores, by the standard error of measurement for the straight discrepancy scores and by an adjusted standard error of measurement for the true discrepancy scores. The standard error of estimate (SEE) in the regression discrepancy model is a function of the correlation between the aptitude and achievement scores, i. e.,

$$SEE = 15 (1 - r^2_{apt,ach})^{1/2}.$$

The standard error of measurement in the straight discrepancy model (SEM) is a function of the reliabilities of the aptitude and achievement measures, i. e.,

$$SEM = 15 (2 - r_{apt} - r_{ach})^{1/2}.$$

The standard error of measurement in the true discrepancy model (SEMT) is a function of both the correlation between the aptitude and achievement scores and the reliabilities of the two measures, i. e.,

$$SEMT = 15 (r^2_{apt} + r^2_{ach} - 2\ r_{apt}\ r_{ach}\ r_{apt,ach})^{1/2}.$$

To obtain the SEM and SEMT values, the reliabilities for the aptitude and achievement measures were varied across the values of .95, .85, and .75, thus creating SEMs and SEMTs for the nine aptitude-achievement discrepancy score configurations: (.95, .95), (.95, .85), (.95, .75), (.85, .95), (.85, .85), (.85, .75), (.75, .95), (.75, .85), and (.75, .75). Once obtained, each of these values was then multiplied by the appropriate z-score from the normal distribution that would identify a fixed percentage of students that are expected to have discrepancy scores as large as the criterion value determined. The current simulations examined the identification rates for z-score values of 1.5 (7%), 1.65 (5%), and 1.96 (2.5%). Table 1 gives the criterion scores using the above procedures for each model under each configuration of aptitude/achievement correlation, aptitude and achievement reliabilities and z-score criterion levels. For any one value in Table 1, if the discrepancy score derived from the model for a student exceeds that value, then the student qualifies (meets this component's eligibility criteria) for services. As noticeable in Table 1, the regression model criterion score is constant for a fixed correlation value, but varies across correlation values, the straight discrepancy model criterion score varies as a function of the reliabilities, but is the same when the sum of the reliabilities is the same (e. g., (.95,.75), (.75,.95) and (.85,.85)) and across correlation values, and the true discrepancy score model criterion score varies across all conditions.

Results and Conclusions

The results of the primary model comparisons are presented in Tables 2-13. Provided are the estimated proportions (percentages) that would be eligible under each of the three models for all conditions which were varied in the simulation studies. Estimated eligibility percentage values are given for different ability groupings in each table so that the trend can be observed for each model as ability level increases. Also, the overall eligibility rate is presented for three conditions: 1) for all 10,000 cases in a data set; 2) for cases with only ability scores of 80 or greater; and 3) for cases with only ability scores of 85 or greater. The latter values were included as some LD eligibility models have a minimum aptitude (ability) requirement to qualify for services in addition to meeting the aptitude-achievement discrepancy requirement based on the model in use.

The presentation of the simulated results in Tables 2-13 are arranged systematically in that the results are presented within sets categorized by the z-score criterion level. That is, Tables 2-5 present results when the z-score criterion was set at 1.5 (approximate 7% rule), Tables 6-9 present results when the z-score criterion was set at 1.65 (5% rule), and Tables 10-13 present results when the z-score criterion was set at 1.96 (2.5% rule). Within each of these sets, the tables are ordered by decreasing aptitude/achievement correlation values, i. e., .75, .55, .35 and .15. It should be noted that in a given table, there is only one set of results for the regression discrepancy model as its standard error is constant for all reliability combinations and that some of the values repeat themselves for different combinations of the reliabilities for the straight and true score discrepancy models. What the latter illustrates is that while the aptitude/achievement reliability combinations may define different conditions, the effect is the same within a given model.

The data in selected tables (9 and 6) are graphically illustrated for selected conditions in attached Figures 1 – 4 (Table 9 results) and 5 – 8 (Table 6 results). Figures 1 and 5 illustrate the basic differences in the regression versus the straight discrepancy models when aptitude/achievement are correlated .15 and .75, respectively and a z-score of 1.65 (5% rule) is used as the criterion level. These two figures are the simple scatter plots of the aptitude and achievement scores from the respective data sets. The solid lines represent the regression lines as assumed in each model. The straight discrepancy model assumes that aptitude and achievement are correlated perfectly ($r = 1.00$). The dotted lines represent the standard error criterion score values from Table 1 such that if a student's achievement score falls below the dotted line for that model, his/her aptitude/achievement discrepancy based on the model would qualify him/her for LD services. The dotted line for the straight discrepancy model represents the most extreme condition with the largest standard error, one where the aptitude/achievement reliabilities are .75 for the two measures.

Figures 2 - 4 and 6 - 8 further illustrate the effects across ability levels for aptitude/achievement correlations of .15 and .75, respectively. These figures plot discrepancy scores from each of the models against aptitude scores. Two vertical lines at aptitude scores of 80 and 85 are presented in each figure to illustrate which discrepancy scores would exceed the criterion levels for cases with aptitude scores greater than or equal to scores of 80 and 85. The horizontal lines in the figures represent the standard error criterion discrepancies needed for a case (data point) to qualify as being eligible.

Any data point above the line represents a case that meets the eligibility criterion. Two lines are presented for the straight discrepancy scores (Figures 2 and 6), each representing the extremes possible, i. e., reliabilities of .95 or .75 for both measures. The true score discrepancy condition presented is when the reliability of the aptitude measure is .75 and the achievement measure is .95. The latter was the most favorable condition for true scores.

Certain trends illustrated in Tables 2-13 and Figures 1 - 8 are readily apparent. These include:

1. The straight discrepancy model always identifies substantially more cases as being eligible than do either of the other two models except under the one condition when the aptitude/achievement correlation is .75 and the aptitude/achievement reliabilities are .75 and .75. The proportions identified for this model increase substantially as the ability level increases. The disparity between this model and the other two models is greater if the reliabilities are higher (the standard error and therefore the criterion score that determines eligibility is smaller) and this disparity increases as the aptitude/achievement correlation becomes smaller.
2. The regression discrepancy model identifies a constant proportion of individuals at the rate set by the z-score across all ability levels.
3. The true discrepancy score model identifies a constant proportion of individuals at the rate set by the z-score, but does so disproportionately across ability levels with very few cases selected at the lower ability levels and the majority selected coming disproportionately from the higher ability categories.

To further illustrate the differences in the models, Table 14 presents the "hit and miss" rates comparing models for students meeting the eligibility criterion for a model. Given in the tables are the percentages of students identified by one of the models, but not the other and the percentages of students identified by both the models. Comparisons of the straight discrepancy to the true score discrepancy model is not included as those students identified by the straight discrepancy model always included those identified by the true score model, but in addition identified substantially more as being eligible. These percentages are based only on those students with aptitude scores greater than or equal to 80. The sample size for these groups was approximately 9000 cases.

The compatible figures to the information in Table 14 are Figures 9 and 10. These figures show the scatter diagrams for the plots of the straight discrepancy versus the regression discrepancy scores for aptitude/achievement correlations of .15 and .75, respectively. The standard error criterion levels are shown by the vertical and horizontal lines in the graphs. Again, two vertical lines are given to represent the two extreme discrepancy score standard error criteria, i. e., when reliabilities are set at .95 or .75 for both measures. Data points above the horizontal line identify those cases that meet the regression model criterion and data points to the right of the vertical lines meet the straight discrepancy model criterion. The intersections of the vertical and horizontal lines divide the graphs into four quadrants. The upper left quadrant illustrates those cases that meet the regression model criterion for eligibility, but not the straight discrepancy model criterion (designated as 0,1 in Table 14). The lower right quadrant illustrates the opposite result, those cases that meet the straight discrepancy model criterion, but not the regression model criterion (designated as 1,0 in Table 14). The upper right quadrant illustrates those cases that meet both the straight discrepancy model criterion and the regression model criterion (designated as 1,1 in Table 14).

Based on the information in Table 14 and the figures, it can be seen that very few cases are judged to be eligible by the regression procedure that are not also judged to be eligible by the straight discrepancy model. Thus, the overlap in the two models are basically those cases identified by the regression model. What is demonstrated in the column labeled "1,0" in Table 14 are the additionally substantial numbers of individuals that would be eligible under the straight discrepancy model.

Educational Importance of the Study

Differing from past presentations of the issues surrounding which model to use, the current study demonstrates very concretely the consequences that result when one of the three models studied is chosen as the preferred model for inclusion in procedures for identifying and qualifying students for LD services. The results of simulation studies conducted indicate that this inflation of qualification rates can range from 12 percent to 31 percent when using the straight discrepancy model versus the regression discrepancy model depending on the score reliabilities for the two measures and the extent of their correlation. The graphic presentations and discussion highlight that the latter inflation rate for the straight discrepancy model is due to a hidden error that might be called a

"model misspecification error," i. e., using a model with an assumption that in reality one knows is not true. The model misspecification error occurs when we fit the straight discrepancy model to the aptitude/achievement scatter plot data assuming a correlation of 1.00 when in reality the correlation is somewhat, and in some cases substantially, below 1.00. The true discrepancy model is found to be acceptable relative to the rate with which persons would qualify, but the model is bias in identifying persons at the higher ranges of ability.

The bottom line conclusion and advice to the field is that one needs to attend to the model being used and realize that individuals at different aptitude levels will qualify at different rates in the straight discrepancy and true discrepancy models with the model qualifying individuals at the higher aptitude levels at a greater rate. This effect is greater the lower the correlation of scores for the aptitude and achievement measures being paired. The tables and graphs presented provide concrete evidence of the consequential effects to be expected when one model is chosen for implementation over another model.

Footnote

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Table 1. Criterion discrepancy score size needed for each model and condition to qualify a student for services.

		z-score=1.5 (7%)			z-score=1.65 (5%)			z-score=1.96 (2.5%)		
Corr.	Reliab	A*	B	C	A	B	C	A	B	C
.75	95,95	14.88	7.11	15.11	16.37	7.83	16.62	19.45	9.30	19.75
	95,85		10.06	14.47		11.07	15.92		13.15	18.91
	95,75		12.32	14.16		13.56	15.58		16.10	18.51
	85,95		10.06	14.47		11.07	15.92		13.15	18.91
	85,85		12.32	13.52		13.56	14.88		16.10	17.67
	85,75		14.23	12.90		15.65	14.19		18.59	16.86
	75,95		12.32	14.16		13.56	15.58		16.10	18.51
	75,85		14.23	12.90		15.65	14.19		18.59	16.86
	75,75		15.91	11.93		17.50	13.13		20.79	15.59
.55	95,95	18.79	7.11	20.28	20.67	7.83	22.31	24.55	9.30	26.50
	95,85		10.06	19.31		11.07	21.24		13.15	25.24
	95,75		12.32	18.57		13.56	20.43		16.10	24.27
	85,95		10.06	19.31		11.07	21.24		13.15	25.24
	85,85		12.32	18.14		13.56	19.96		16.10	23.71
	85,75		14.23	17.19		15.65	18.91		18.59	22.46
	75,95		12.32	18.57		13.56	20.43		16.10	24.27
	75,85		14.23	17.19		15.65	18.91		18.59	22.46
	75,75		15.91	16.01		17.50	17.61		20.79	20.92
.35	95,95	21.08	7.11	24.37	23.18	7.83	26.81	27.54	9.30	31.82
	95,85		10.06	23.16		11.07	25.48		13.15	30.27
	95,75		12.32	22.11		13.56	24.33		16.10	28.90
	85,95		10.06	23.16		11.07	25.48		13.15	30.27
	85,85		12.32	21.81		13.56	23.99		16.10	28.49
	85,75		14.23	20.61		15.65	22.67		18.59	26.93
	75,95		12.32	22.11		13.56	24.33		16.10	28.90
	75,85		14.23	20.61		15.65	22.67		18.59	26.93
	75,75		15.91	19.24		17.50	21.16		20.79	25.14
.15	95,95	22.25	7.11	27.87	24.47	7.83	30.66	29.07	9.30	36.42
	95,85		10.06	26.46		11.07	29.10		13.15	34.57
	95,75		12.32	25.17		13.56	27.69		16.10	32.87
	85,95		10.06	26.46		11.07	29.10		13.15	34.57
	85,85		12.32	24.94		13.56	27.43		16.10	32.58
	85,75		14.23	23.53		15.65	25.88		18.59	36.75
	75,95		12.32	25.17		13.56	27.69		16.10	32.87
	75,85		14.23	23.53		15.65	25.88		18.59	30.75
	75,75		15.91	22.00		17.50	24.20		20.79	28.75

* A = Regression Discrepancy Model;
B = Straight Discrepancy Model;
C = True Discrepancy Score Model

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Description for Tables 2-13

Tables 2-13 indicate the percentage of students at different ability levels estimated to meet LD eligibility criteria using three different models:

1) a regression discrepancy model,
2) a straight discrepancy model, and
3) a true score discrepancy model.

Within each table, percentage values are given for different reliability values for the aptitude and achievement measures. These latter values evaluated were .95, .85 and .75 for each measure. The total percentages also are given for students combined across ability groups for all students, students with ability scores greater than 79 and students with ability scores greater than 85.

The differences from one table to another are defined by two parameters:

1) the level of correlation between the aptitude and achievement measure (presented are values of .75, .55, .35 and .15) and,

2) the cut-score (z-score) standard used to define a qualifying discrepancy (values were set at z-scores of 1.5 (approximately 7%), 1.65 (5%) and 1.96 (2.5%)).

The following identify the combinations of each of these latter values for each table.

Table 2:	Aptitude/Achievement correlation = .75; z-score standard = 1.5 (7%)
Table 3:	Aptitude/Achievement correlation = .55; z-score standard = 1.5 (7%)
Table 4:	Aptitude/Achievement correlation = .35; z-score standard = 1.5 (7%)
Table 5:	Aptitude/Achievement correlation = .15; z-score standard = 1.5 (7%)
Table 6:	Aptitude/Achievement correlation = .75; z-score standard = 1.65 (5%)
Table 7:	Aptitude/Achievement correlation = .55; z-score standard = 1.65 (5%)
Table 8:	Aptitude/Achievement correlation = .35; z-score standard = 1.65 (5%)
Table 9:	Aptitude/Achievement correlation = .15; z-score standard = 1.65 (5%)
Table 10:	Aptitude/Achievement correlation = .75; z-score standard = 1.96 (2.5%)
Table 11:	Aptitude/Achievement correlation = .55; z-score standard = 1.96 (2.5%)
Table 12:	Aptitude/Achievement correlation = .35; z-score standard = 1.96 (2.5%)
Table 13:	Aptitude/Achievement correlation = .15; z-score standard = 1.96 (2.5%)

Table 2 - Aptitude/Achievement correlation = .75; z-score standard = 1.5 (7%)

Model	Reliabilities		Ability Category Intervals							Total percentages based on students with ability scores for:		
	Apt	Ach.	<80	80-84	85-89	90-99	100-109	110-119	>119	full range	>79	>85
Regression			6.9	6.3	6.6	7.0	6.5	6.7	5.9	6.6	7.0	7.0
Discrepancy	.95	.95	8.6	12.0	15.2	19.7	28.3	36.4	49.1	25.2	27.0	28.0
True Discrepancy	.95	.95	2.1	2.3	2.5	4.3	7.0	10.7	17.7	6.7	7.0	8.0
Discrepancy	.95 .85	.85 .95	5.2	6.8	9.5	12.8	19.6	26.4	36.7	17.4	19.0	20.0
True Discrepancy	.95	.85	.5	1.3	1.4	2.9	6.4	12.1	24.7	6.8	7.0	8.0
True Discrepancy	.85	.95	3.3	3.6	4.2	5.5	7.2	9.5	13.9	6.9	7.0	8.0
Discrepancy	.95 .75 .85	.75 .95 .85	3.6	4.7	6.4	9.0	13.2	19.8	28.9	12.5	13.0	14.0
True Discrepancy	.95	.75	.1	.1	.5	1.8	5.3	12.4	30.9	6.6	7.0	8.0
True Discrepancy	.75	.95	6.2	5.8	6.3	6.7	6.6	7.4	7.6	6.7	7.0	7.0
True Discrepancy	.85	.85	2.1	2.3	2.5	4.3	7.0	10.7	17.7	6.7	7.0	8.0
Discrepancy	.85	.75	2.7	2.9	3.9	6.3	9.8	14.6	23.5	9.3	10.0	11.0
True Discrepancy	.85	.75	.4	1.3	1.4	2.8	6.3	12.2	25.3	6.8	7.0	8.0
True Discrepancy	.75	.85	3.8	4.0	4.3	5.6	7.1	7.0	13.4	6.8	7.0	7.0
Discrepancy	.75	.75	2.1	2.3	2.5	4.3	7.0	10.7	17.7	6.7	7.0	8.0
True Discrepancy	.75	.75	2.1	2.3	2.5	4.3	7.0	10.7	17.7	6.7	7.0	8.0

Table 3. Aptitude/Achievement correlation = .55; z-score standard = 1.5 (7%)

Model	Reliabilities		Ability Category Intervals							Total percentages based on students with ability scores for:		
	Apt	Ach.	<80	80-84	85-89	90-99	100-109	110-119	>119	full range	>79	>85
Regression			8.2	8.3	6.6	6.9	6.8	4.9	7.2	6.8	7.0	6.0
Discrepancy	.95	.95	8.2	13.1	15.0	21.3	35.2	49.9	65.0	31.0	33.0	35.0
True Discrepancy	.95	.95	.1	1.1	1.4	3.7	6.5	10.8	24.1	6.7	7.0	8.0
Discrepancy	.95 .85	.85 .95	5.1	9.5	10.6	16.1	27.1	40.3	56.4	24.4	26.0	28.0
True Discrepancy	.95	.85	.1	.5	.8	2.4	5.8	11.4	28.3	6.6	7.0	8.0
True Discrepancy	.85	.95	.9	1.8	2.1	4.4	7.1	10.0	19.6	6.7	7.0	8.0
Discrepancy	.95 .75 .85	.75 .95 .85	3.8	6.8	7.7	12.4	21.7	34.1	50.5	20.1	22.0	23.0
True Discrepancy	.95	.75	0	0	.4	1.5	4.5	11.7	35.2	6.7	7.0	8.0
True Discrepancy	.75	.95	2.3	3.2	3.5	5.3	7.4	8.6	15.3	6.7	7.0	7.0
True Discrepancy	.85	.85	.1	1.1	1.4	3.7	6.5	10.8	24.1	6.7	7.0	8.0
Discrepancy	.85	.75	2.1	4.5	5.9	9.6	17.2	28.8	44.2	16.4	18.0	19.0
True Discrepancy	.85	.75	.1	.3	.7	2.3	5.6	11.5	28.6	6.6	7.0	8.0
True Discrepancy	.75	.85	.9	1.8	2.3	4.6	7.2	9.8	19.1	6.7	7.0	8.0
Discrepancy	.75	.75	1.3	3.0	4.5	7.3	13.9	23.8	37.6	13.3	14.0	15.0
True Discrepancy	.75	.75	.1	1.1	1.4	3.7	6.5	10.8	24.1	6.7	7.0	8.0

Table 4. Aptitude/Achievement correlation = .35; z-score standard = 1.5 (7%)

Model	Reliabilities Apt	Reliabilities Ach	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			6.1	5.5	7.0	7.0	7.2	6.7	8.0	6.9	7.0	7.0
Discrepancy	.95	.95	3.7	8.0	15.3	22.5	39.8	55.7	75.4	33.6	37.0	39.0
True Discrepancy	.95	.95	.1	.2	.7	2.4	6.2	11.7	29.0	6.7	7.0	8.0
Discrepancy	.95 .85	.85 .95	1.8	4.9	10.5	17.4	32.4	47.0	68.6	27.7	30.0	32.0
True Discrepancy	.95	.85	.1	0	.3	1.7	5.6	11.9	31.8	6.7	7.0	8.0
True Discrepancy	.85	.95	.2	.2	1.1	3.3	6.7	11.4	25.5	6.8	7.0	8.0
Discrepancy	.95 .75 .85	.75 .95 .85	1.2	3.5	8.1	14.4	27.1	39.9	62.7	23.6	26	28
True Discrepancy	.95	.75	0	0	.3	1.0	4.6	11.9	36.4	6.6	7.0	8.0
True Discrepancy	.75	.95	4.0	6.0	1.8	4.4	7.3	10.9	21.0	6.8	7.0	8.0
True Discrepancy	.85	.85	.1	.2	.7	2.4	6.2	11.7	29.0	6.7	7.0	8.0
Discrepancy	.85	.75	1.0	2.8	6.0	12.0	23.0	35.5	57.7	20.5	23.0	24.0
True Discrepancy	.85	.75	.1	0	.3	1.5	5.6	12.0	32.2	6.7	7.0	8.0
True Discrepancy	.75	.85	.4	.3	1.3	3.4	6.9	11.4	24.3	6.8	7.0	8.0
Discrepancy	.75	.75	.6	1.7	4.2	9.8	20.1	31.2	53.7	17.9	20.0	21.0
True Discrepancy	.75	.75	.1	.2	.7	2.4	6.2	11.7	29.0	6.7	7.0	8.0

Table 5. Aptitude/Achievement correlation = .15; z-score standard = 1.5 (7%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals ≤80	80-84	85-89	90-99	100-109	110-119	≥119	Total percentages based on students with ability scores for: full range	≥79	≥85
Regression			5.3	7.0	8.4	6.4	6.1	7.4	6.2	6.6	7.0	7.0
Discrepancy	.95	.95	2.6	7.4	14.0	21.9	40.0	63.6	84.7	35.4	39.0	41.0
True Discrepancy	.95	.95	0	.1	.4	1.0	4.4	13.8	33.9	6.7	7.0	8.0
Discrepancy	.95 .85	.85 .95	1.5	4.9	10.1	16.6	32.5	55.7	78.4	29.7	33.0	35.0
True Discrepancy	.95	.85	0	.1	.3	.7	4.0	13.7	37.8	6.9	8.0	8.0
True Discrepancy	.85	.95	0	.1	.9	1.4	4.9	13.4	30.1	6.6	7.0	8.0
Discrepancy	.95 .75 .85	.75 .95 .85	1.1	3.6	7.8	13.5	27.4	49.6	74.8	26.1	29.0	31.0
True Discrepancy	.95	.75	0	0	.2	.5	3.2	13.7	40.8	6.9	8.0	8.0
True Discrepancy	.75	.95	.1	.6	1.2	1.9	5.4	13.1	27.6	6.6	7.0	8.0
True Discrepancy	.85	.85	0	.1	.4	1.0	4.4	13.8	33.9	6.7	7.0	8.0
Discrepancy	.85	.75	.9	2.8	6.8	11.2	23.4	44.3	69.3	22.9	25.0	27.0
True Discrepancy	.85	.75	0	0	.3	.6	3.9	13.8	38.1	6.9	8.0	8.0
True Discrepancy	.75	.85	0	.3	.9	1.4	5.0	13.4	29.7	6.6	7.0	8.0
Discrepancy	.75	.75	.6	2.3	5.4	9.1	20.7	41.1	66.0	20.8	23.0	25.0
True Discrepancy	.75	.75	0	.1	.4	1.0	4.4	13.8	33.9	6.7	7.0	8.0

Table 6 - Aptitude/Achievement correlation = .75; z-score standard = 1.65 (5%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for full range	>79	>85
Regression			5.8	5.0	4.8	5.0	4.8	5.0	4.4	4.9	5.0	5.0
Discrepancy	.95	.95	7.3	9.7	13.2	18.3	26.0	33.7	45.8	23.1	25.0	26.0
True Discrepancy	.95	.95	.8	2.0	2.2	2.9	4.9	7.8	15.3	5.0	5.0	6.0
Discrepancy	.95 .85	.85 .95	4.9	6.0	7.5	10.8	16.6	23.3	33.3	15.1	16.0	17.0
True Discrepancy	.95	.85	.2	.7	1.0	1.9	4.4	8.9	19.6	4.9	5.0	6.0
True Discrepancy	.85	.95	2.7	2.7	2.8	4.0	5.3	7.1	9.0	5.0	5.0	5.0
Discrepancy	.95 .75 .85	.75 .95 .85	2.7	3.6	4.7	7.2	10.5	16.0	25.3	10.2	11.0	12.0
True Discrepancy	.95	.75	0	.1	.2	1.2	3.2	9.2	25.7	4.9	5.0	6.0
True Discrepancy	.75	.95	4.7	4.1	4.2	4.7	5.0	5.7	5.2	4.9	5.0	5.0
True Discrepancy	.85	.85	08	2.0	2.2	2.9	4.9	7.8	15.3	5.0	5.0	6.0
Discrepancy	.85	.75	2.1	2.4	2.7	4.6	7.5	11.4	19.1	7.1	8.0	8.0
True Discrepancy	.85	.75	.2	.7	.8	1.9	4.3	9.0	20.4	5.0	5.0	6.0
True Discrepancy	.75	.85	2.7	2.7	2.9	4.1	5.3	6.9	8.8	4.9	5.0	5.0
Discrepancy	.75	.75	.8	2.0	2.2	2.9	4.9	7.8	15.3	5.0	5.0	6.0
True Discrepancy	.75	.75	.8	2.0	2.2	2.9	4.9	7.8	15.3	5.0	5.0	6.0

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Table 7 - Aptitude/Achievement correlation = .55; z-score standard = 1.65 (5%)

Model	Reliabilities Apt	Reliabilities Ach	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			6.0	6.5	5.3	5.4	4.6	3.8	5.2	5.1	5.0	5.0
Discrepancy	.95	.95	7.2	12.3	13.8	20.1	33.6	47.7	62.6	29.5	32.0	33.0
True Discrepancy	.95	.95	.1	.5	.9	2.3	4.4	7.2	18.6	4.7	5.0	6.0
Discrepancy	.95 .85	.85 .95	4.7	8.7	9.2	14.3	24.6	37.6	54.5	22.5	24.0	26.0
True Discrepancy	.95	.85	0	.2	.4	1.5	3.7	7.7	23.1	4.8	5.0	6.0
True Discrepancy	.85	.95	.3	1.1	1.4	3.4	4.9	6.6	15.8	4.8	5.0	6.0
Discrepancy	.95 .75 .85	.75 .95 .85	2.5	4.8	6.4	10.7	18.6	30.7	46.6	17.6	19.0	20.0
True Discrepancy	.95	.75	0	0	.3	.8	2.9	7.8	27.9	4.8	5.0	6.0
True Discrepancy	.75	.95	1.1	1.8	2.1	4.2	5.1	6.0	12.4	4.8	5.0	5.0
True Discrepancy	.85	.85	.1	.5	.9	2.3	4.4	7.2	18.6	4.7	5.0	6.0
Discrepancy	.85	.75	1.4	3.2	4.7	7.8	14.5	24.8	38.5	13.9	15.0	16.0
True Discrepancy	.85	.75	0	.2	.4	1.5	3.7	7.7	23.6	4.8	5.0	6.0
True Discrepancy	.75	.85	.3	1.4	1.5	3.5	5.0	6.5	15.3	4.8	5.0	6.0
Discrepancy	.75	.75	.9	2.3	3.2	6.2	11.6	19.7	33.0	11.2	12.0	13.0
True Discrepancy	.75	.75	.1	.5	.9	2.3	4.4	7.2	18.6	4.7	5.0	6.0

Table 8 - Aptitude/Achievement correlation = .35; z-score standard = 1.65 (5%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			4.2	3.9	4.7	5.4	5.1	4.3	5.6	4.9	5.0	5.0
Discrepancy	.95	.95	3.2	7.2	14.4	21.0	37.7	53.7	73.6	32.0	35.0	37.0
True Discrepancy	.95	.95	.1	0	.3	1.5	4.0	8.8	23.0	4.9	5.0	6.0
Discrepancy	.95 .85	.85 .95	1.5	4.4	9.8	16.4	30.0	43.6	65.8	25.9	28.0	30.0
True Discrepancy	.95	.85	0	0	.3	1.0	3.3	8.8	25.8	4.9	5.0	6.0
True Discrepancy	.85	.95	.1	.2	.7	2.0	4.7	8.7	20.5	5.0	6.0	6.0
Discrepancy	.95 .75 .85	.75 .95 .85	1.0	3.1	6.7	12.6	24.3	36.6	59.9	21.4	24.0	25.0
True Discrepancy	.95	.75	0	0	.3	.6	2.2	8.4	28.9	4.7	5.0	6.0
True Discrepancy	.75	.95	.4	.5	1.2	2.8	5.2	8.5	17.0	5.1	6.0	6.0
True Discrepancy	.85	.85	.1	0	.3	1.5	4.0	8.8	23.0	4.9	5.0	6.0
Discrepancy	.85	.75	.6	2.2	4.4	10.1	20.6	32.0	54.9	18.4	20.2	22.0
True Discrepancy	.85	.75	0	0	.3	.9	3.3	8.8	26.5	4.9	5.0	6.0
True Discrepancy	.75	.85	.1	.2	.9	2.2	4.9	8.7	20.0	5.1	6.0	6.0
Discrepancy	.75	.75	.4	1.4	3.3	8.1	16.3	26.5	49.9	15.3	17.0	18.0
True Discrepancy	.75	.75	.1	0	.3	1.5	4.0	8.8	23.0	4.9	5.0	6.0

Table 9 - Aptitude/Achievement correlation = .15; z-score standard = 1.65 (5%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			4.3	4.9	6.7	4.3	4.5	5.7	4.6	4.9	5.0	5.0
Discrepancy	.95	.95	2.3	6.8	13.2	20.6	38.0	61.6	83.3	34.0	37.0	40.0
True Discrepancy	.95	.95	0	.1	.3	.6	3.0	10.1	26.6	5.0	6.0	6.0
Discrepancy	.95 .85	.85 .95	1.1	4.2	9.3	15.3	30.3	53.4	77.1	28.2	31.0	33.0
True Discrepancy	.95	.85	0	0	.2	05	2.5	10.0	29.6	5.1	6.0	6.0
True Discrepancy	.85	.95	0	.1	.4	.8	3.6	10.2	24.0	5.0	5.0	6.0
Discrepancy	.95 .75 .85	.75 .95 .85	.9	3.2	7.1	12.0	24.8	46.6	71.9	24.2	27.0	28.0
True Discrepancy	.95	.75	0	0	.1	.2	2.0	9.6	33.7	5.2	6.0	6.0
True Discrepancy	.75	.95	0	.3	.9	1.2	4.0	10.1	21.9	5.0	6.0	6.0
True Discrepancy	.85	.85	0	.1	.3	.6	3.0	10.1	26.6	5.0	6.0	6.0
Discrepancy	.85	.75	8.0	2.3	5.9	9.1	21.1	41.7	66.6	21.1	.23	.25
True Discrepancy	.85	.75	0	0	.2	.4	2.5	9.9	30.5	5.1	6.0	6.0
True Discrepancy	.75	.85	0	.1	.5	.9	3.7	10.	23.3	5.0	5.0	6.0
Discrepancy	.75	.75	.4	1.7	4.6	7.5	17.8	37.3	63.0	18.6	21.0	22.0
True Discrepancy	.75	.75	0	.1	.3	.6	3.0	10.1	26.6	5.0	6.0	6.0

Table 10 - Aptitude/Achievement correlation = .75; z-score standard = 1.96 (2.5%)

Model	Reliabilities		Ability Category Intervals							Total percentages based on students with ability scores for:		
	Apt	Ach.	<80	80-84	85-89	90-99	100-109	110-119	>119	full range	>79	>85
Regression			3.3	2.6	2.4	2.3	2.4	2.5	2.1	2.5	2.0	2.0
Discrepancy	.95	.95	5.9	8.0	10.6	14.7	21.4	28.5	38.8	19.1	20.0	22.0
True Discrepancy	.95	.95	.4	.7	.8	1.6	2.4	4.2	6.9	2.4	3.0	3.0
Discrepancy	.95 .85	.85 .95	2.8	4.0	5.4	7.8	11.5	17.3	26.1	11.0	12.0	12.0
True Discrepancy	.95	.85	.1	.1	.3	.9	2.1	4.4	12.3	2.6	3.0	3.0
True Discrepancy	.85	.95	1.1	1.7	1.3	1.9	2.6	3.7	4.8	2.5	3.0	3.0
Discrepancy	.95 .75 .85	.75 .95 .85	2.0	2.3	2.4	4.0	6.7	10.47	17.5	6.5	7.0	7.0
True Discrepancy	.95	.75	0	0	0	.4	1.2	3.9	15.6	2.4	3.0	3.0
True Discrepancy	.75	.95	2.7	2.6	2.3	2.2	2.5	2.9	2.8	2.5	3.0	3.0
True Discrepancy	.85	.85	.4	.7	.8	1.6	2.4	4.2	6.9	2.4	3.0	3.0
Discrepancy	.85	.75	.7	1.3	1.4	2.2	3.8	6.5	12.4	4.0	4.0	5.0
True Discrepancy	.85	.75	0	.1	.2	.9	2.0	4.4	12.8	2.6	3.0	3.0
True Discrepancy	.75	.85	1.3	2.0	1.4	1.9	2.5	3.6	4.7	2.5	3.0	3.0
Discrepancy	.75	.75	.4	.7	.8	1.6	2.4	4.2	6.9	2.4	3.0	3.0
True Discrepancy	.75	.75	.4	.7	.8	1.6	2.4	4.2	6.9	2.4	3.0	3.0

Table 11 - Aptitude/Achievement correlation = .55; z-score standard = 1.96 (2.5%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			3.2	2.9	2.1	2.7	2.2	2.0	2.8	2.5	2.0	2.0
Discrepancy	.95	.95	5.8	10.2	11.1	17.5	29.0	42.7	58.0	25.9	28.0	29.0
True Discrepancy	.95	.95	0	0	.4	.9	1.7	3.4	11.8	2.4	3.0	3.0
Discrepancy	.95 .85	.85 .95	3.1	5.4	7.0	11.3	19.6	31.5	47.9	18.4	20.0	21.0
True Discrepancy	.95	.85	0	0	.3	.6	1.5	3.6	14.1	2.4	3.0	3.0
True Discrepancy	.85	.95	.1	.3	.5	1.4	2.0	3.3	9.4	2.3	3.0	3.0
Discrepancy	.95 .75 .85	.75 .95 .85	1.3	3.0	4.5	7.0	13.5	23.0	36.8	12.9	14.0	15.0
True Discrepancy	.95	.75	0	0	0	.2	1.0	3.3	15.9	2.3	3.0	3.0
True Discrepancy	.75	.95	.2	.9	1.0	1.8	2.3	3.1	6.8	2.3	3.0	3.0
True Discrepancy	.85	.85	0	0	.4	.9	1.7	3.4	11.8	2.4	3.0	3.0
Discrepancy	.85	.75	.7	1.7	2.4	5.3	9.7	17.2	30.5	9.7	11.0	11.0
True Discrepancy	.85	.75	0	0	.2	.4	1.4	3.6	14.2	2.4	3.0	3.0
True Discrepancy	.75	.85	.1	.5	.7	1.5	2.1	3.3	8.9	2.3	3.0	3.0
Discrepancy	.75	.75	.2	1.1	1.5	4.0	7.2	11.7	25.7	7.3	8.0	9.0
True Discrepancy	.75	.75	0	0	.4	.9	1.7	3.4	11.8	2.4	3.0	3.0

Table 12 - Aptitude/Achievement correlation = .35; z-score standard = 1.96 (2.5%)

Model	Reliabilities		Ability Category Intervals							Total percentages based on students with ability scores for:		
	Apt	Ach.	<80	80-84	85-89	90-99	100-109	110-119	>119	full range	>79	>85
Regression			2.0	1.7	2.5	3.0	2.5	2.3	2.7	2.5	3.0	5.0
Discrepancy	.95	.95	1.8	6.0	12.1	18.5	34.7	49.5	70.2	29.8	31.0	34.0
True Discrepancy	.95	.95	0	0	.3	.5	1.3	4.0	13.8	2.4	3.0	3.0
Discrepancy	.95 .85	.85 .95	1.2	3.3	7.1	13.1	25.3	37.7	61.0	22.2	24.0	26.0
True Discrepancy	.95	.85	0	0	.3	.2	1.1	3.7	16.3	2.4	3.0	3.0
True Discrepancy	.85	.95	.1	0	.3	.8	1.5	3.9	12.5	2.4	3.0	3.0
Discrepancy	.95 .75 .85	.75 .95 .85	.5	1.7	4.2	9.6	19.7	30.1	53.6	17.6	19.0	21.0
True Discrepancy	.95	.75	0	0	.1	.1	.8	3.4	18.8	2.5	3.0	3.0
True Discrepancy	.75	.95	.1	0	.4	1.1	2.0	3.8	11.0	2.4	3.0	3.0
True Discrepancy	.85	.85	0	0	.3	.5	1.3	4.0	13.8	2.4	3.0	3.0
Discrepancy	.85	.75	.4	.9	2.7	7.0	14.3	24.2	45.7	13.7	15.0	16.0
True Discrepancy	.85	.75	0	0	.3	.2	1.0	3.7	16.8	2.5	3.0	3.0
True Discrepancy	.75	.85	.1	0	.3	.9	1.6	3.8	12.2	2.4	3.0	3.0
Discrepancy	.75	.75	.4	.6	1.8	5.3	11.6	19.6	39.3	11.2	12.0	13.0
True Discrepancy	.75	.75	0	0	.3	.5	1.3	4.0	13.8	2.4	3.0	3.0

Table 13 - Aptitude/Achievement correlation = .15; z-score standard = 1.96 (2.5%)

Model	Reliabilities Apt	Reliabilities Ach.	Ability Category Intervals <80	80-84	85-89	90-99	100-109	110-119	>119	Total percentages based on students with ability scores for: full range	>79	>85
Regression			2.2	2.8	3.7	2.0	2.4	2.7	2.3	2.5	3.0	2.0
Discrepancy	.95	.95	2.1	5.5	11.1	17.9	34.1	57.5	80.2	31.1	34.0	36.0
True Discrepancy	.95	.95	0	0	.2	.2	1.3	4.9	15.1	2.6	3.0	3.0
Discrepancy	.95 .85	.85 .95	1.0	3.3	7.2	12.3	25.6	47.9	72.7	24.8	27.0	29.0
True Discrepancy	.95	.85	0	0	0	.0	1.0	4.7	16.7	2.6	3.0	3.0
True Discrepancy	.85	.95	0	0	.2	.4	1.5	5.2	13.1	2.5	3.0	3.0
Discrepancy	.95 .75 .85	.75 .95 .85	.6	2.2	5.4	8.9	20.3	40.6	65.8	20.5	23.0	24.0
True Discrepancy	.95	.75	0	0	0	.1	.7	4.2	18.2	2.6	3.0	3.0
True Discrepancy	.75	.95	0	.1	.3	.5	1.8	5.4	11.3	2.5	3.0	3.0
True Discrepancy	.85	.85	0	0	.2	.2	1.3	4.9	15.1	2.6	3.0	3.0
Discrepancy	.85	.75	.3	1.3	3.7	6.5	15.9	34.3	58.4	16.9	19.0	20.0
True Discrepancy	.85	.75	0	0	0	.1	1.0	4.7	16.9	2.6	3.0	3.0
True Discrepancy	.75	.85	0	0	.2	.4	1.6	5.2	13.0	2.5	3.0	3.0
Discrepancy	.75	.75	.1	.7	2.5	4.5	12.9	29.5	54.7	14.4	16.0	17.0
True Discrepancy	.75	.75	0	0	.2	.2	1.3	4.9	15.1	2.6	3.0	3.0

Table 14. Hit and miss rates (in percentages) when comparing models for students meeting eligibility criterion.

		Straight discrepancy vs. regression			True Score vs. regression		
Corr.	Reliab	1,0*	1,1	0,1	1,0	1,1	0,1
.75	95,95	19.8	4.9	0.0	1.1	3.7	1.7
	95,85	10.7	5.4	0.0	1.7	3.1	2.3
	95,75	6.2	4.7	0.1	2.3	2.5	2.9
	85,95				0.6	4.2	1.0
	85,85						
	85,75	3.4	4.3	0.6			
	75,95				0.2	4.7	0.3
	75,85						
	75,75	1.7	3.7	1.1			
.55	95,95	26.7	5.0	0.0	1.9	3.0	2.1
	95,85	19.3	5.0	0.0	2.4	2.6	2.6
	95,75	14.3	4.8	0.1	2.7	2.2	3.1
	85,95				1.5	3.5	1.7
	85,85						
	85,75	10.4	4.7	0.3			
	75,95				1.1	3.9	1.3
	75,85						
	75,75	7.8	4.4	0.6			
.35	95,95	30.0	5.0	0.0	2.1	2.8	2.6
	95,85	23.4	5.0	0.0	2.4	2.5	2.8
	95,75	18.6	4.9	0.1	2.8	2.1	3.1
	85,95				1.8	3.2	2.4
	85,85						
	85,75	15.4	4.8	0.2			
	75,95				1.5	3.5	2.1
	75,85						
	75,75	12.2	4.7	0.3			
.15	95,95	32.3	4.9	0.0	2.4	2.5	3.0
	95,85	26.1	4.9	0.1	2.6	2.3	3.3
	95,75	21.8	4.8	0.2	2.8	2.1	3.6
	85,95				2.2	2.7	2.8
	85,85						
	85,75	18.5	4.6	0.3			
	75,95				2.0	3.0	2.6
	75,85						
	75,75	16.0	4.5	0.5			

1,0 = percent of students selected by the straight (or true score) discrepancy model, but not by the regression model

1,1 = percent of students selected by both models

0,1 = percent of students selected by the regression model, but not the straight (or true score) discrepancy model

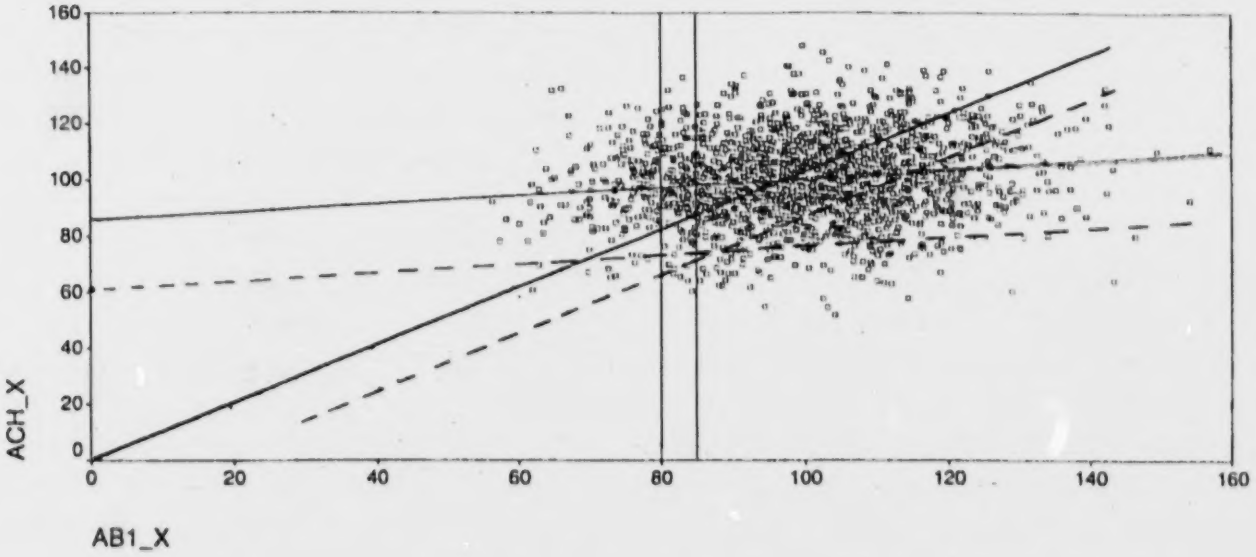

Figure 1. Aptitude by Achievement Scatterplot for r (apt,ach) = .15; Dotted lines represent standard error eligibility criterion values (5% level) for the straight discrepancy and regression models

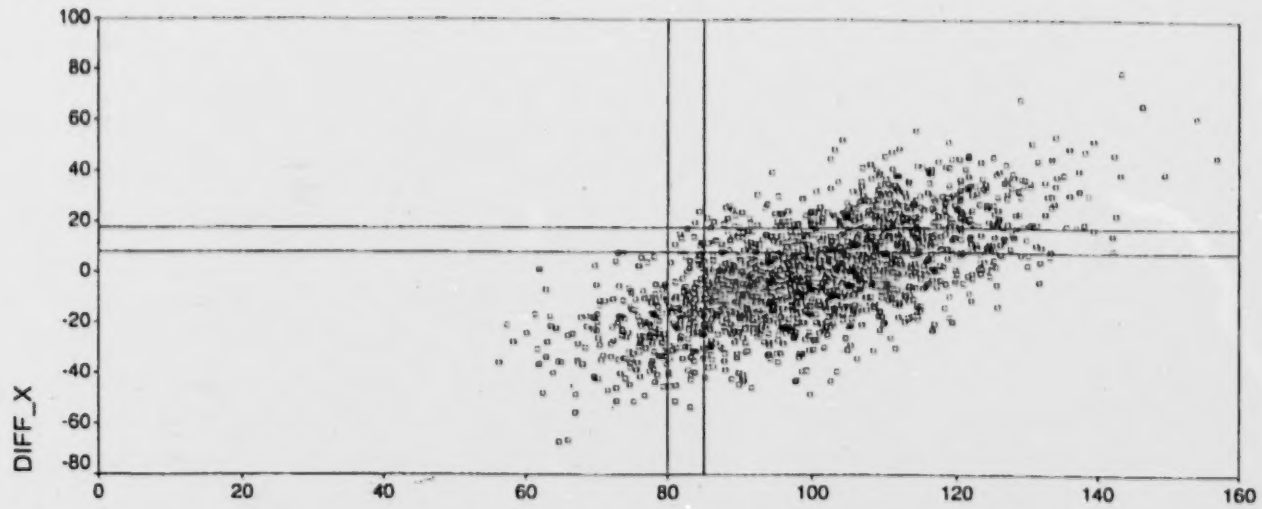

Figure 2. Aptitude by Straight Difference Score Scatterplot for r (apt,ach) = .15; Horizontal lines represent maximum (reliabilities of .75) and minimum (reliabilities of .95) standard error eligibility criterion values (5% level)

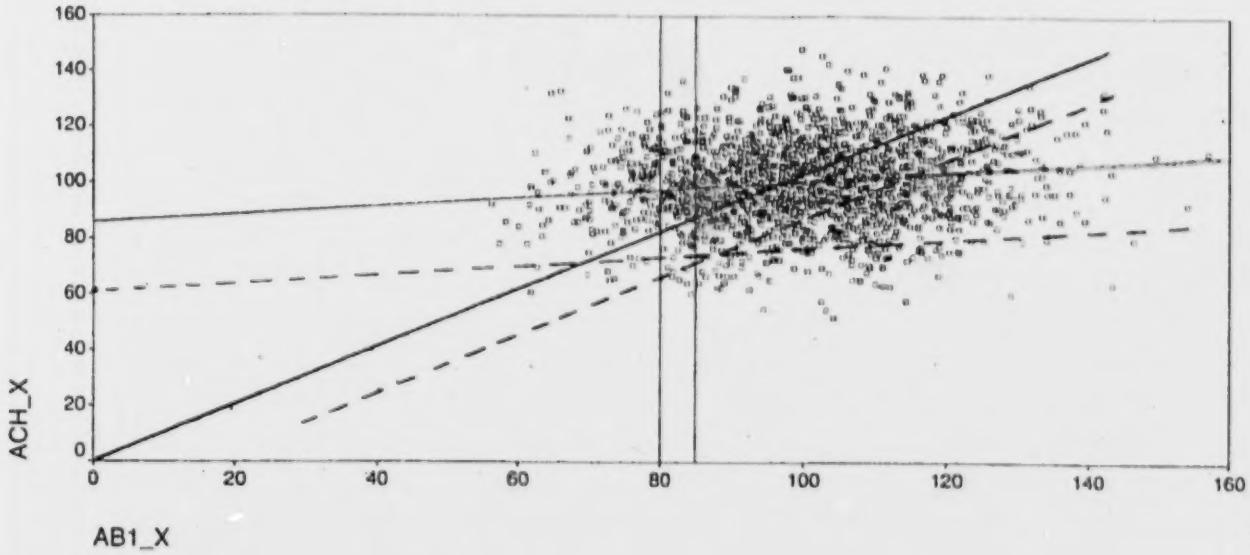

Figure 1. Aptitude by Achievement Scatterplot for r (apt,ach) = .15; Dotted lines represent standard error eligibility criterion values (5% level) for the straight discrepancy and regression models

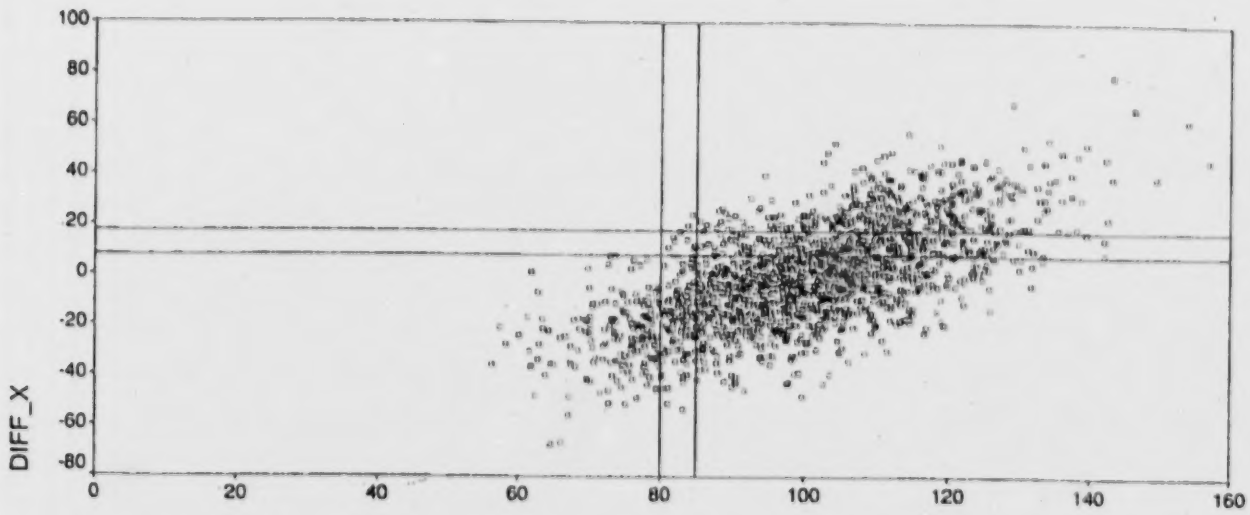

Figure 2. Aptitude by Straight Difference Score Scatterplot for r (apt,ach) = .15; Horizontal lines represent maximum (reliabilities of .75) and minimum (reliabilities of .95) standard error eligibility criterion values (5% level)

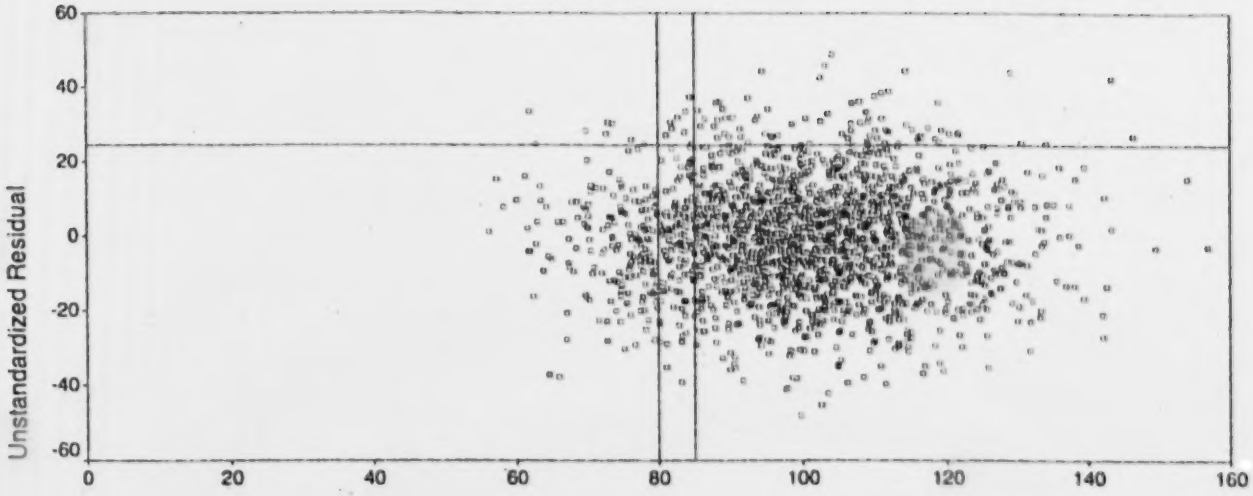

Figure 3. Aptitude by Regression Discrepancy Score Scatterplot for r (apt,ach) = .15; Horizontal line represents the standard error eligibility criterion values (5% level)

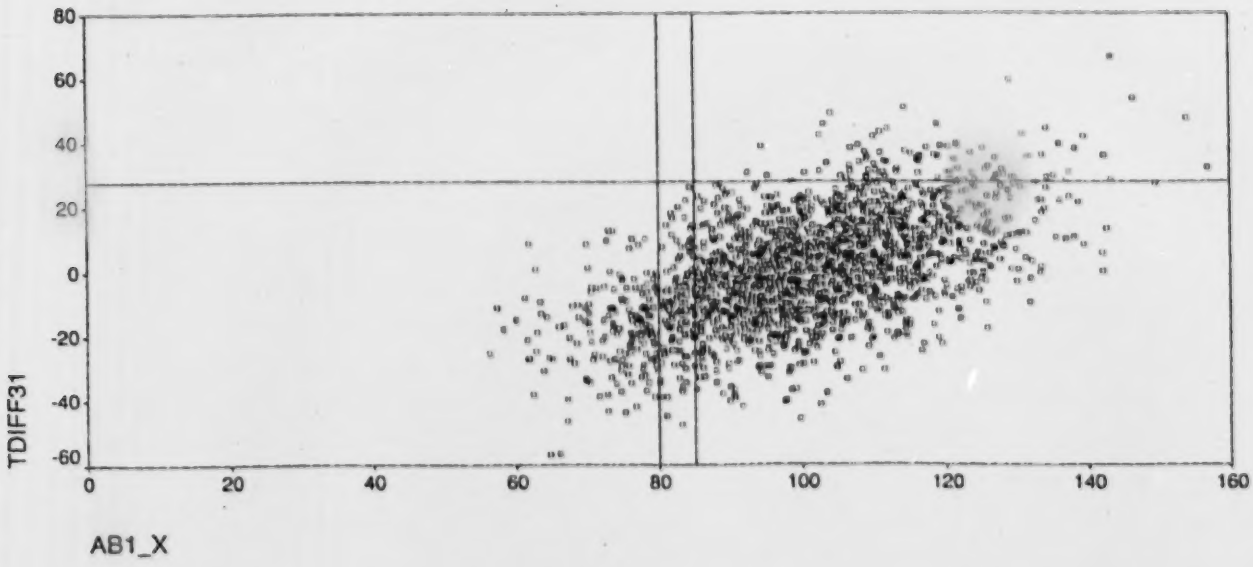

Figure 4. Aptitude by True Difference Score Scatterplot for r (apt,ach) = .15; Horizontal lines represents the standard error eligibility criterion values (5% level) for reliabilities of .75 and .95

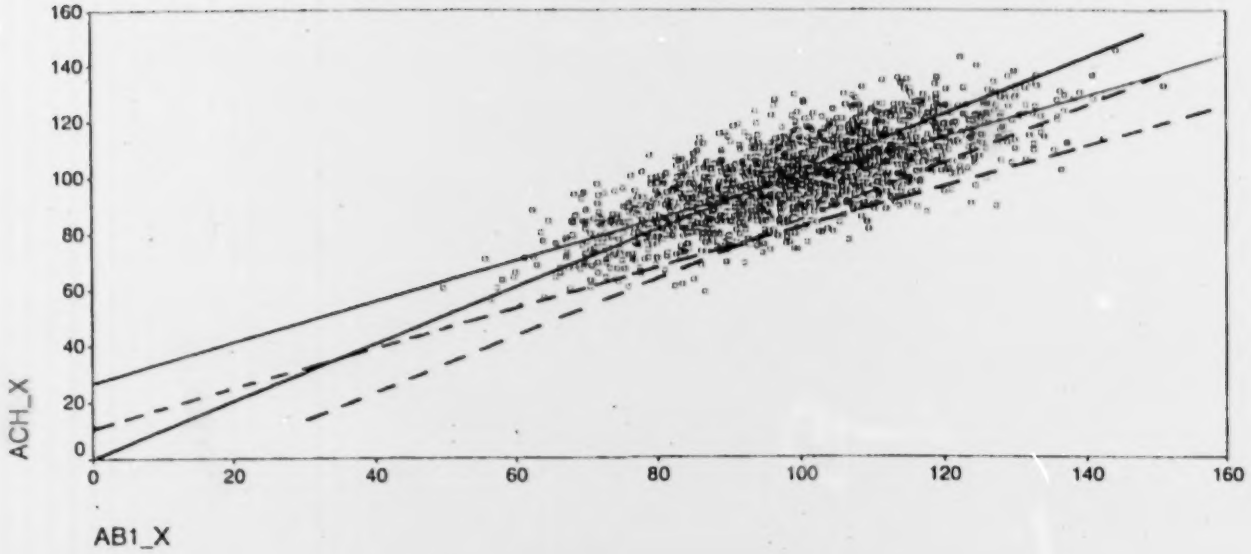

Figure 5. Aptitude by Achievement Scatterplot for r (apt,ach) = .75; Dotted lines represent standard error eligibility criterion values (5% level) for the straight discrepancy and regression models

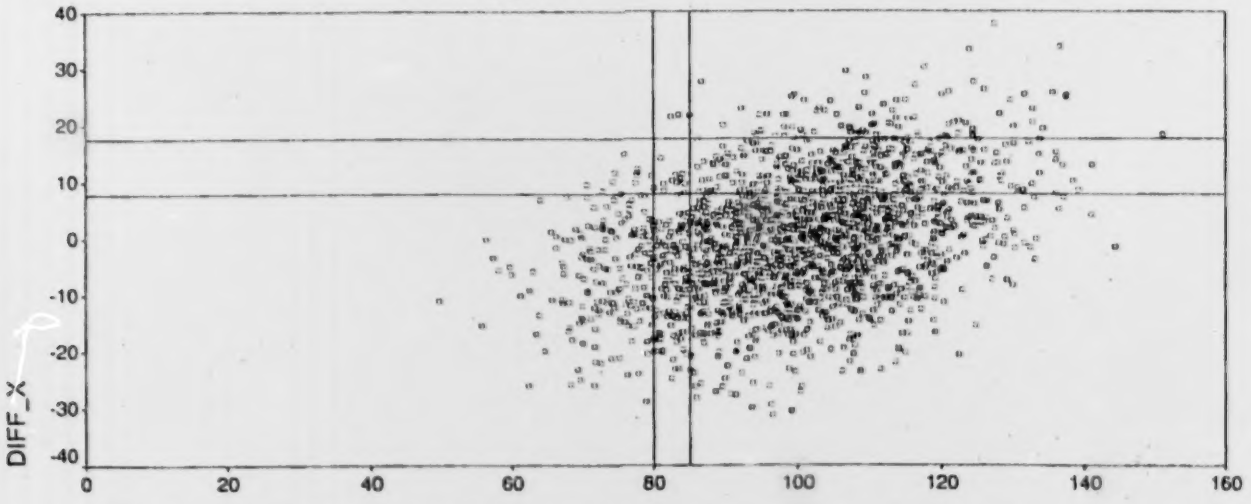

Figure 6. Aptitude by Straight Difference Score Scatterplot for r (apt,ach) = .75; Horizontal lines represent maximum (reliabilities of .75) and minimum (reliabilities of .95) standard error eligibility criterion values (5% level)

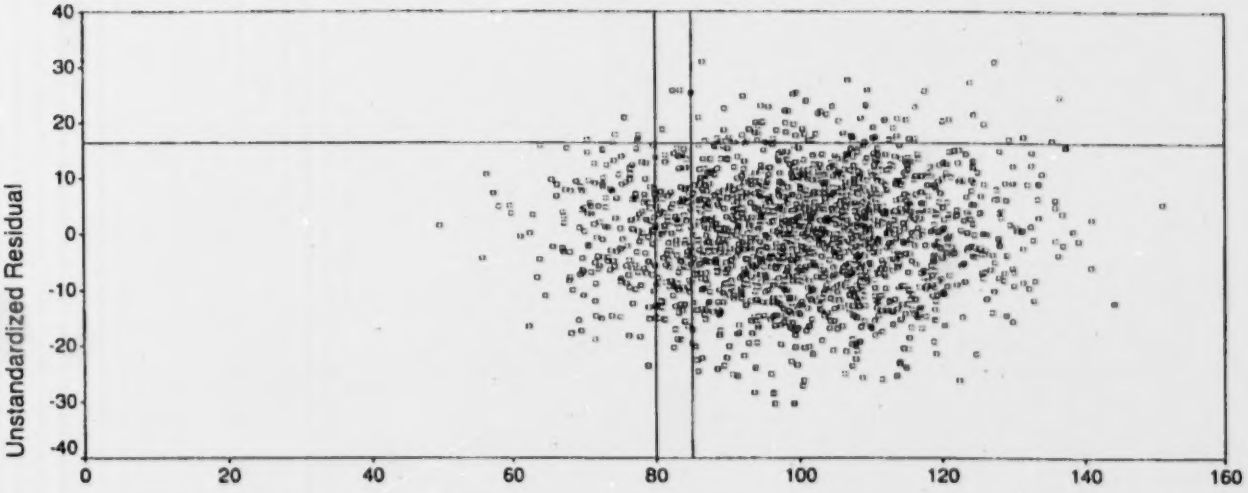

Figure 7. Aptitude by Regression Discrepancy Score Scatterplot for r (apt,ach) = .75; Horizontal line represents the standard error eligibility criterion values (5% level)

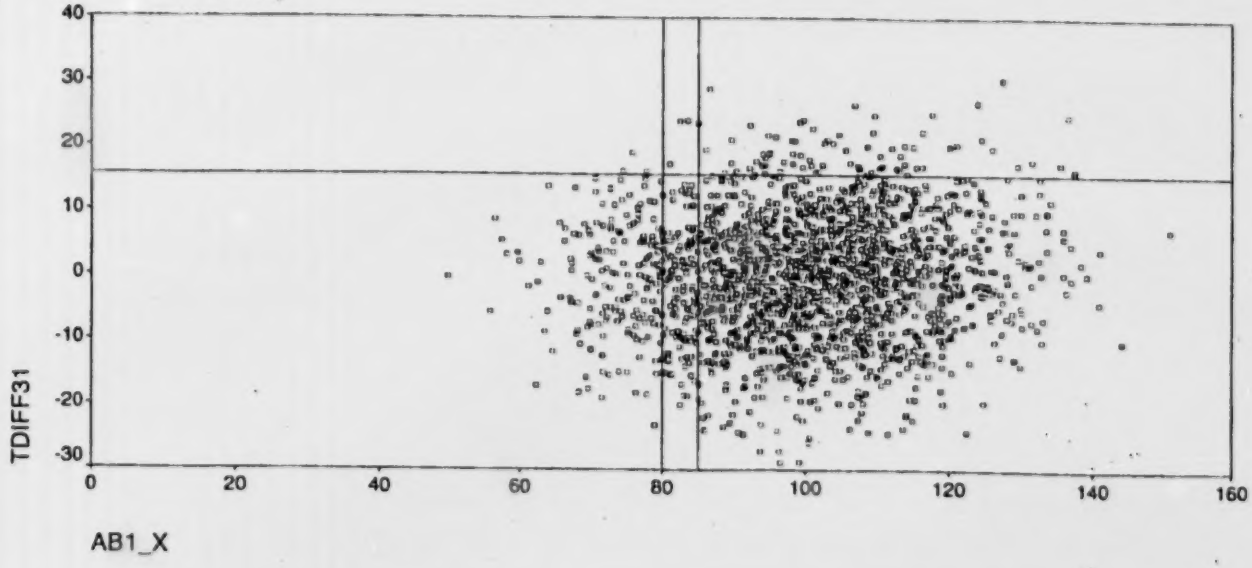

Figure 8. Aptitude by True Difference Score Scatterplot for r (apt,ach) = .75; Horizontal lines represents the standard error eligibility criterion values (5% level) for reliabilities of .75 and .95

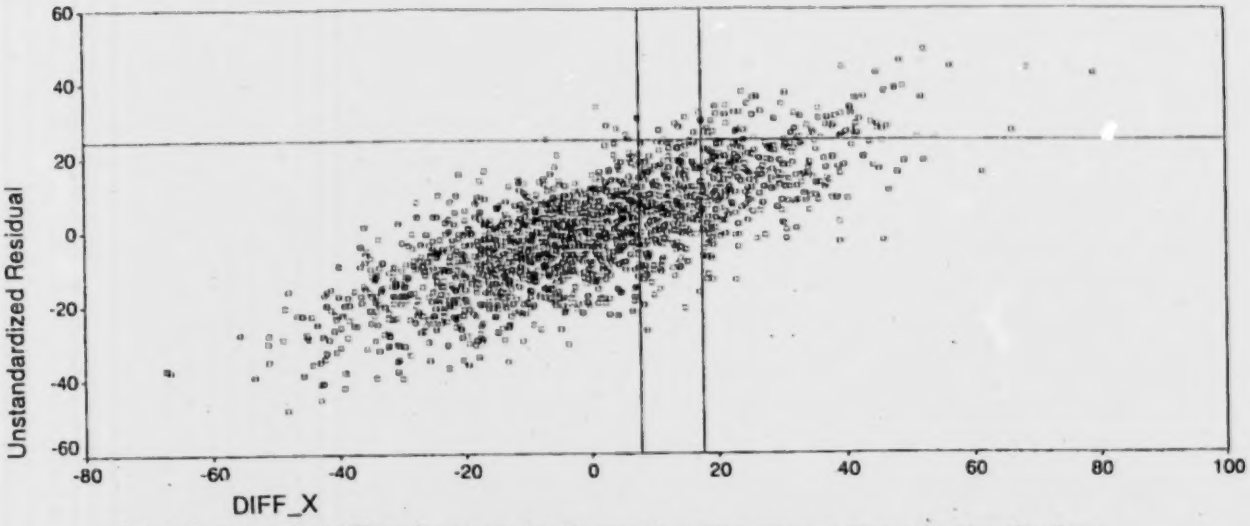

Figure 9. Straight Difference Score by Regression Discrepancy Score Scatterplot for r (apt,ach) = .15; Vertical lines represent maximum (reliabilities of .75) and minimum (reliabilities of .95) standard error eligibility criterion values (5% level) for the Straight Discrepancy Score model and the Horizontal line represents the standard error eligibility criterion values (5% level) for the Regression Discrepancy Score

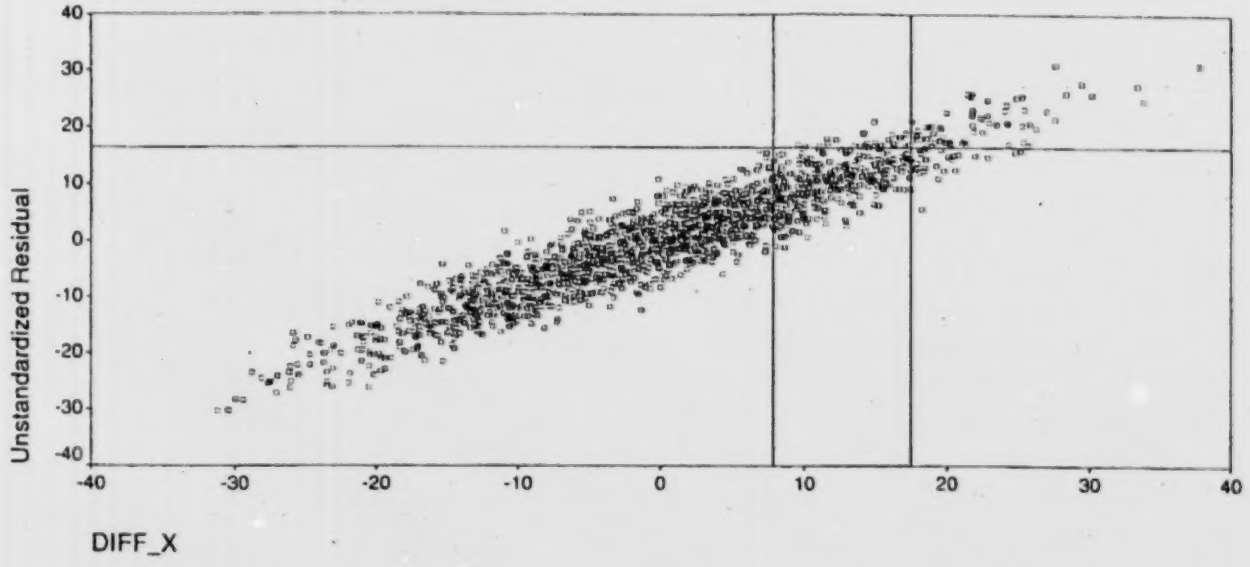

Figure 10. Straight Difference Score by Regression Discrepancy Score Scatterplot for r (apt,ach) = .75; Vertical lines represent maximum (reliabilities of .75) and minimum (reliabilities of .95) standard error eligibility criterion values (5% level) for the Straight Discrepancy Score model and the Horizontal line represents the standard error eligibility criterion values (5% level) for the Regression Discrepancy Score

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